What is claimed is:

1. An in-line particulate detector comprising:

a housing having an inner flow portion, which housing is removably disposable between adjacent portions of pipeline to permit a fuel flow from a fuel source through said inner flow portion to a fuel consumer;

a light source disposed within said housing for emitting a light beam within said inner flow portion;

a first photodetector disposed within said housing positioned opposite and substantially normal to said light source such that substantially full strength of an unimpeded generated light beam is detected by said first photodetector;

a second photodetector disposed within said housing adjacent said first photodetector positioned such that a baseline level of an unimpeded generated light beam is detected by said second photodetector; and

circuitry coupled to said first and second photodetector to monitor the ratio of light intensities measured by said first and second photodetectors to indicate the presence of particulate within an introduced fuel flow.

2. An in-line particulate detector in accordance with claim 1, wherein said flow is natural gas.

3. An in-line particulate detector in accordance with claim 1, wherein said flow is selected from the group consisting of propane, hexane, heptone, gas derived from coal, and methane.

4. An in-line particulate detector in accordance with claim 1, wherein a fuel containing particulates will cause a generated

light beam to be scattered, and the light intensity measured by second photodetector will increase above the baseline level and the light intensity reaching first photodetector will decrease.

5. An in-line particulate detector in accordance with claim 1, wherein a control structure is inputted into said circuitry.

6. An in-line particulate detector in accordance with claim 5, wherein said control structure is inputted into said circuitry by programming into memory of an application specific integrated circuit.

7. An in-line particulate detector in accordance with claim 5, wherein said control structure is inputted into said circuitry by being embedded in the form of algorithms in one or more computers.

8. An in-line particulate detector in accordance with claim 7, wherein said computer is selected from the group consisting of a workstation, a minicomputer, a microcomputer, and a supercomputer.

9. An in-line particulate detector in accordance with claim 5, wherein said control structure is programmed in a language selected from the group of C, C++, Basic, MATLAB, and FORTRAN.

10. An in-line particulate detector in accordance with claim 5, wherein said control structure comprises the method step of:

comparing the ratio of light intensities measured by said first and second photodetectors to a setpoint ratio.

11. An in-line particulate detector in accordance with claim 10, wherein said ratio of light intensities exceeds said setpoint ratio and said circuitry initiates a system control.

12. An in-line particulate detector in accordance with claim 11, wherein said system control is to limit a turbine engine to low load operation.

13. An in-line particulate detector in accordance with claim 11, wherein said system control is an algorithm to look at system anomalies.

14. An in-line particulate detector in accordance with claim 11, wherein said system control is the activation of an alarm.

15. A remote in-line particulate detector comprising:

a housing having an inner flow portion, which housing is removably disposable between adjacent portions of pipeline to permit a fuel flow from a fuel source through said inner flow portion to a fuel consumer;

a light source disposed within said housing for emitting a light beam within said inner flow portion;

a first photodetector disposed within said housing positioned opposite and substantially normal to said light source such that substantially full strength of an unimpeded generated light beam is detected by said first photodetector;

a second photodetector disposed within said housing adjacent said first photodetector positioned such that a baseline level of an unimpeded generated light beam is detected by said second photodetector; and

circuitry coupled to said first and second photodetector to monitor the ratio of light intensities measured by said first and second photodetectors to indicate the presence of particulate within an introduced fuel flow; and

at least one remote unit for transmitting signals generated from said first and second photodetectors;

a central station; and

a communications link.

16. A remote in-line particulate detector in accordance with claim 15, wherein said signals represent light intensities measured by said first and photodetectors.

17. A remote in-line particulate detector in accordance with claim 15, wherein said remote system comprises a central interface coupled to said at least one remote unit, wherein said central interface is adapted to control communications between said central station and said at least one remote unit.

18. A remote in-line particulate detector in accordance with claim 15, wherein said communications link comprises a radio frequency (RF) front end.

19. A remote in-line particulate detector in accordance with claim 15 wherein said communication link comprises a satellite.

20. A remote in-line particulate detector in accordance with claim 15, wherein said communication link comprises a link.

21. A remote in-line particulate detector in accordance with claim 15 wherein said remote system further comprises an antenna.

22. A remote in-line particulate detector in accordance with claim 15 wherein said remote system further comprises at least one user interface device.

23. An in-line particulate detector comprising:

a housing having an inner flow portion, which housing is removably disposable between adjacent portions of pipeline to permit a fuel flow from a fuel source through said inner flow portion to a fuel consumer;

a means for emitting a light beam within said inner flow portion;

a first means for detecting substantially full strength of an unimpeded light beam generated by said means for emitting;

a second means for detecting a baseline level of unimpeded light beam generated by said means for emitting; and

a means for comparing the light intensities detected by said first and second means for detecting, to determine the presence of particulate within an introduced flow.

24. An in-line particulate detector in accordance with claim 23, wherein said flow is natural gas.

25. An in-line particulate detector in accordance with claim 23, wherein said flow is selected from the group consisting of propane, hexane, heptane, gas derived from coal, and methane.

26. An in-line particulate detector in accordance with claim 23, wherein a fuel containing particulates will cause a generated light beam to be scattered, and the light intensity measured by said second means for detecting will increase above the baseline level and the light intensity reaching said first means for detecting will decrease.

27. An in-line particulate detector in accordance with claim 23, wherein a control structure is inputted into said circuitry.

28. An in-line particulate detector in accordance with claim 27, wherein said control structure is inputted into said circuitry by programming into memory of an application specific integrated circuit.

29. An in-line particulate detector in accordance with claim 27, wherein said control structure is inputted into said circuitry by being embedded in the form of algorithms in one or more computers.

30. An in-line particulate detector in accordance with claim 29, wherein said computer is selected from the group consisting of a workstation, a minicomputer, a microcomputer, and a supercomputer.

31. An in-line particulate detector in accordance with claim 27, wherein said control structure is programmed in a language selected from the group of C, C++, Basic, MATLAB, and FORTRAN.

32. An in-line particulate detector in accordance with claim 27, wherein said control structure comprises the method step of:

comparing the ratio of light intensities measured by said first and second photodetectors to a setpoint ratio.

33. An in-line particulate detector in accordance with claim 32, wherein said ratio of light intensities exceeds said setpoint ratio and said circuitry initiates a system control.

34. An in-line particulate detector in accordance with claim 33, wherein said system control is to limit a turbine engine to low load operation.

35. An in-line particulate detector in accordance with claim 33, wherein said system control is an algorithm to look at system anomalies.

36. An in-line particulate detector in accordance with claim 33, wherein said system control is the activation of an alarm.

37. An in-line particulate detector comprising:

a housing having an inner flow portion;

a light source disposed within said housing for emitting a light beam within said inner flow portion;

a first photodetector disposed within said housing positioned opposite and substantially normal to said light source such that substantially full strength of an unimpeded generated light beam is detected by said first photodetector;

a second photodetector disposed within said housing adjacent said first photodetector positioned such that a baseline level of an unimpeded generated light beam is detected by said second photodetector; and

circuitry coupled to said first and second photodetector to monitor the ratio of light intensities measured by said first and second photodetectors to indicate the presence of particulate within an introduced flow.

38. An in-line particulate detector for insertion within a pipeline, said detector comprising:

a light source to be disposed within said pipeline for emitting a light beam within an inner flow poriton of said pipeline;

a first photodetector to be disposed within said pipeline positioned opposite and substantially normal to said light source such that substantially full strength of an unimpeded generated light beam is detected by said first photodetector;

a second photodetector to be disposed within said pipeline adjacent said first photodetector postioned such that a baseline level of unimpeded generated light beam is detected by said second photodetector; and

circuitry coupled to said first and second photodetector to monitor the ratio of light intensities measured by said first and second photodetectors to indicate the presence of particulate within an introduced flow.